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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/661,104	09/12/2003	Luca Pividori	02-AG-029/RR	6564
23334	7590	04/18/2005	EXAMINER	
FLEIT, KAIN, GIBBONS, GUTMAN, BONGINI & BIANCO P.L. ONE BOCA COMMERCE CENTER 551 NORTHWEST 77TH STREET, SUITE 111 BOCA RATON, FL 33487			ESTRADA, MICHELLE	
		ART UNIT	PAPER NUMBER	
		2823		
DATE MAILED: 04/18/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/661,104	PIVIDORI, LUCA	
	<b>Examiner</b>	<b>Art Unit</b>	
	Michelle Estrada	2823	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 02 December 2004.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-19 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-19 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 12 September 2003 is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |                                                                                                                                              |                                                                             |
|----------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                                                  | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                                         | Paper No(s)/Mail Date. _____.                                               |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>9/12/03</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|                                                                                                                                              | 6) <input type="checkbox"/> Other: _____.                                   |

**DETAILED ACTION*****Election/Restrictions***

In view of Applicant's arguments, the Examiner withdraws the Restriction requirement mailed 12/2/04; therefore all claims 1-19 are examined as below.

***Drawings***

Figures 1-4 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 8, 13 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Tamura et al. (5,877,095).

Re claims 1 and 13, Tamura et al. disclose forming a layer of BPSG (44) on a surface of an integrated circuit; and forming a transparent layer of nitride UV (46) above the layer of BPSG (Col. 5, lines 1-5).

Re claims 8 and 17, Tamura et al. disclose wherein in the step of forming the transparent layer of nitride UV, the transparent layer of nitride UV is formed by deposition using a CVD process (Col. 5, lines 4-5).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-5, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamura et al. as applied to claims 1, 8, 13 and 17 above, and further in view of Applicant's Admitted Prior Art (AAPA).

Tamura et al. do not disclose after the step of forming a transparent layer of nitride UV, forming two overlapped layers of BARC and resist on the surface of the integrated circuit.

Re claims 2 and 14, AAPA discloses after the step of forming the BPSG layer, forming two overlapped layers of BARC and resist on the surface of the integrated circuit (Page 4, lines 6-11).

It would have been within the scope of one of ordinary skill in the art to combine the teachings of Tamura et al. and AAPA to enable the BARC's and resist layers formation step of AAPA to be performed in the process of Tamura et al. for the masks to be used in the exposure of the DUV rays.

Re claim 3, AAPA discloses after the step of forming two overlapped layers of BARC and resist, chemically etching the integrated circuit so as to form contact openings (See Fig. 4 and Page 4, lines 12-15).

Re claims 4, 5 and 15, AAPA discloses before the step of forming a layer of BPSG, forming a USG oxide layer on the surface of the integrated circuit, the USG oxide layer having a thickness of between 500 Å and 2500 Å (Page 4, lines 23-25).

Claims 6, 7, 9-12, 16, 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamura et al. as applied to claims 1, 8, 13 and 17 above, and further in view of Shin et al. (2002/0063334).

Tamura et al. do not disclose wherein in the step of forming the transparent layer of nitride UV, the transparent layer of nitride UV is formed by deposition using an HDP process.

Re claims 6 and 16, Shin et al. disclose forming a silicon nitride layer (19) by deposition using an HDP process.

It would have been within the scope of one of ordinary skill in the art to combine the teachings of Tamura et al. and Shin et al. to enable the HDP-nitride formation step of Shin et al. to be performed in the process of Tamura et al. because HDP will be an alternative suitable method of forming the nitride layer.

Re claims 7, 9-12, 18 and 19, one of ordinary skill in the art would have been led to the recited nitride layer thickness through routine experimentation to achieve a desired device dimension, device associated characteristics and device density on the finished wafer. In addition, the selection of the nitride layer thickness, it's obvious because it is a matter of determining optimum process conditions by routine experimentation with a limited number of species of result effective variables. These claims are *prima facie* obvious without showing that the claimed ranges achieve unexpected results relative to the prior art range. *In re Woodruff*, 16 USPQ2d 1935, 1937 (Fed. Cir. 1990). See also *In re Huang*, 40 USPQ2d 1685, 1688 (Fed. Cir. 1996)(claimed ranges or a result effective variable, which do not overlap the prior art ranges, are unpatentable unless they produce a new and unexpected result which is different in kind and not merely in degree from the results of the prior art). See also *In re Boesch*, 205 USPQ 215 (CCPA) (discovery of optimum value of result effective variable in known process is ordinarily within skill or art) and *In re Aller*, 105 USPQ 233 (CCPA 1995) (selection of optimum ranges within prior art general conditions is obvious).

Note that the specification contains no disclosure of either the critical nature of the claimed thickness of the nitride layer or any unexpected results arising therefrom. Where patentability is said to be based upon particular chosen

thickness of the nitride layer or upon another variable recited in a claim, the Applicant must show that the chosen thickness of the nitride layer are critical. *In re Woodruf*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michelle Estrada whose telephone number is 571-272-1858. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on 571-272-1855. The fax phone numbers for the organization where this application or proceeding is assigned are 571-273-0224 for regular communications and 703-308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-2800.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair>-

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direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Michelle Estrada  
Examiner  
Art Unit 2823

ME  
April 13, 2005